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ABSTRACT

This study examined cognitive coaching conferences between 1994 and 1997 as teachers practiced their coaching skills. Participants were part of a 3-year grant funded by the U.S. Department of Education. The cognitive coaching process was used to provide teachers with support in implementing content standards. Coaches participating in the study audiotaped planning and reflecting conferences at least twice during the 3-year period. Thirty-three coaches were involved. Of these coaches, most were Anglo women, and most were elementary teachers. Audiotapes were transcribed and analyzed using the qualitative software, NUD*IST. Conferences for many coaches changed in character over the 3 years, with greater fluidity and thoughtfulness associated with later conferences. Not all teachers exhibited growth, however, and both conference length and word usage changed only slightly. Results overall support the idea that cognitive coaching can be useful in encouraging teachers to think beyond concrete, surface behaviors when planning instruction for their students. (Contains 23 references.) (Author/SM)

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Growth in Coaching Skills Over a Three-Year Period: Progress Toward Mastery

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Abstract

This study examined Cognitive Coaching conferences between 1994 and 1997 as teachers practiced their coaching skills. Participants were part of a three-year grant funded by the U. S. Department of Education. The Cognitive Coaching process was used to provide teachers with support in implementing content standards. The coaches participating in this study audiotaped Planning and Reflecting Conferences at least twice during the three-year period. Thirty-three coach-teachers were involved. Of these coaches, most were Anglo women, and most were elementary teachers. Audiotapes were transcribed and analyzed using the qualitative software, NUD*IST. Conferences for many coaches changed in character over the three years, with greater fluidity and thoughtfulness associated with later conferences. Not all teachers exhibited growth, however, and both conference length and word usage changed only slightly. Results overall support the idea that Cognitive Coaching can be useful in encouraging teachers to think beyond concrete, surface behaviors when planning instruction for their students.

Introduction

This qualitative study examined the changes that teachers made over a three-year period in their mutual coaching relevant to Standards-Based lessons. Participants were teachers in a large western state who were participating in a U.S. Department of Education grant to provide them with support in implementing content standards. Teachers received training in Cognitive Coaching over a period of three years, and they audiotaped Planning and Reflecting Conferences during each year of the training.

Some of the goals of Cognitive Coaching are to increase teacher efficacy and provide a climate in which teachers can interact more professionally and collaboratively. After training in Cognitive Coaching, teachers choose their coaching partners. The coach first has a Planning Conversation about an upcoming lesson that the teacher is planning, asking questions to help the teacher define goals, evidence of achievement of goals, teaching strategies, and focus for data gathering. Then, the coach observes the lesson and gathers the data that the teacher requested. After the observation, the coach has a Reflecting Conversation with the teacher. At this time, the coach shares the data and asks questions to guide the teacher in analyzing the data and making applications to future lessons. Then, the teacher who was observed serves as a coach for the teacher who coached him/her, and the sequence begins again (Costa & Garmston, 1994).

During the coaching process, the coach uses skills of rapport building, questioning, paraphrasing, and probing, among others. Cognitive Coaching is "the supervisor's application of a set of strategies designed to enhance the teacher's

perceptions, decisions, and intellectual functions. These inner thought processes are prerequisites to improving overt instructional behaviors which will, in turn, produce greater student learning" (Costa & Garmston, 1989, p. R-6). In the coaching process, "the target of change is teacher thought. This is important and rewarding because it is the invisible skills of teaching, the thinking processes that underlie instructional decisions, that produce superior instruction" (Garmston, 1991, p. 12).

Cognitive Coaching training combined with regular coaching cycles has resulted in positive outcomes for teachers in a number of studies. Teachers trained in Cognitive Coaching expressed significantly higher satisfaction with education as a career than those who did not (Edwards & Newton, 1995). First year teachers receiving Cognitive Coaching grew significantly on a conceptual level question (Edwards, 1993). Teachers who completed more Interaction Sheets, i.e., journal pages about their coaching interactions, grew more in reflective thought as measured by the Reflective Pedagogical Thinking instrument (Simmons, Sparks, Starko, Pasch, & Colton, 1989) than those who completed fewer Interaction Sheets (Edwards, 1993). Furthermore, teachers perceived that participating in more coaching cycles resulted in greater changes in their thought processes (Foster, 1989).

Cognitive Coaching has been shown to have an effect on teacher efficacy in several studies (Edwards, Green, Lyons, Rogers, & Swords, 1998; Edwards & Newton, 1995; Krpan, 1997). Teachers using Cognitive Coaching for a longer period of time tended to have higher teaching efficacy than those using it for a shorter time, and teachers who had received training in Cognitive Coaching had higher teaching efficacy than a control group who had not received training

(Edwards & Newton, 1995). In addition, student teachers trained in Cognitive Coaching were more concerned about student learning and the needs and welfare of students, while control group teachers were more concerned with their own performance (Burk, Ford, Guffy, & Mann, 1996).

Cognitive Coaching has also been found to affect school culture. Data have indicated that Cognitive Coaching tends to change teachers' relationships with the principal (Garmston, 1990), and that the coaching process tends to bring about greater enthusiasm for teaching in those who participate (Edwards & Newton, 1995; Garmston, 1990). A three-year study of Cognitive Coaching found significant increases on all three subscales of the *School Culture Survey* (Saphier & King, 1985). These subscales include Teacher Collaboration, Teacher Professionalism and Goal Setting, and Administrator Professional Treatment of Teachers (Edwards et al., 1998). Another researcher (Sommers, 1991) found that as a result of Cognitive Coaching, teachers talked more with their colleagues about teaching, ceased to be concerned about the amount of work necessary to teach higher order thinking skills to students, and improved in the direct instruction of thinking skills. They also liked the specific feedback and new ideas they received, reported increased collegiality, liked having other people in their classrooms, and recommended that other teachers become involved in coaching. Another study (Sparks & Bruder, 1987) found that the coaching process tends to bring about greater staff cohesiveness.

A number of studies have investigated the effects of Cognitive Coaching on particular groups. Positive effects have been shown with classroom teachers (Edwards & Newton, 1995), Title I teachers (Hagopian, Williams, Carrillo, &

Hoover, 1996), curriculum consultants (Phillips, 1996), and new teachers in mentoring situations (Barnett, 1995). Other studies have found that Cognitive Coaching has value for university professors (Garmston & Hyerle, 1988) as well as for doctoral and master's programs that train educational leaders (Geltner, 1993). Math teachers also benefited from Cognitive Coaching (McLymont & da Costa, 1998; Ray, 1998).

The process of learning to coach is a long and technical one. Cognitive Coaching training lasts for seven days. Teachers are encouraged to apply their coaching skills both in the training and in their environment. A goal is for teachers to become self-coaching as well as to internalize the coaching skills so that they use them in every interaction, whether they are in a formal coaching situation or interacting with colleagues, students, or parents. Teachers learning Cognitive Coaching are also encouraged to take on the identity of a coach – a mediator of learning and thinking – so that they will respond with coaching responses rather than telling people what to do (Costa & Garmston, 1994).

While the literature supports Cognitive Coaching as a method of encouraging teacher growth, no studies could be found of the progression that teachers go through as they implement Cognitive Coaching skills. This study provides insight into how teachers learn to coach each other and provides recommendations for maximizing growth.

Method

Participants were asked to tape record Planning and Reflecting conversations each year for three years. They recorded coaching conferences after two days of

training in Year One, after a total of seven days of training in Year Two, and after a total of nine days of training in Year Three.

Participants in this project were 33 K-12 teachers from the largest school district in a western state. The district was in both urban and suburban areas, and comprised schools from low to high socioeconomic status. Participants were part of a three-year grant funded by the U.S. Department of Education Fund for Innovation in Education. The purpose of the grant was to assist teachers in implementing State Content Standards through Cognitive Coaching. Two hundred forty teachers participated in the Cognitive Coaching training. Of the 240 participating teachers, half provided audiotapes of Planning and Reflecting conversations. Of the teachers asked to provide annual tapes, 33 actually provided tapes at least twice in the three-year period. Table 1 provides a description of demographic characteristics of these 33 teachers. The names listed are pseudonyms. All data reflect values as of the end of the grant period in May of 1997.

Table 1. Demographic Characteristics of Teachers in This Study

Teacher	Age	Gender	Ethnicity	Education	Years Exp.	Grade Level	Subject
1—Abby	67	Female	Anglo	Master's	24	3rd	Library
2—Betty	40	Female	Anglo	Bachelor's	15	1st	All
3—Chris	42	Female	Anglo	Master's	16	3-4	All
4—Delfina	–	Female	Anglo	–	–	–	–
5—Emily	56	Female	Anglo	Master's	33	4th	All
6—Francis	46	Female	Anglo	Master's	17	6th	All
7—Ginny	38	Female	Anglo	Master's	7	3rd	Library
8-Hanna	29	Female	Anglo	Master's	3	5th	All
9—Ina	51	Female	Anglo	Bachelor's	13	5th	All
10-Jim	52	Male	Anglo	Master's	24	2nd	All
11-Kathy	50	Female	Anglo	Bachelor's	3	4-5	Social Stud.
12-Leah	58	Female	Anglo	Master's	34	K	All
13-Milly	50	Female	Anglo	Bachelor's	26	3rd	All
14-Nona	46	Female	Anglo	Master's	21	HS	English
15-Opal	56	Female	Anglo	–	–	3rd	–
16-Pat	–	Female	Anglo	–	–	–	–
17-Qarri	29	Female	Hispanic	Bachelor's	2	K	All
18-Ray	49	Female	Anglo	Bachelor's	5	3-4	Lang. Arts
19-Sandy	48	Female	Anglo	Master's	24	3-4	All
20-Tara	48	Female	Anglo	Master's	15	8th	Math
21-Uma	47	Female	Anglo	Master's	12	2nd	Lang. Arts
22-Vilma	46	Female	Anglo	Bache-lor's	14	3rd	All

23-Wes	52	Female	Anglo	Bache-lor's	15	1-2	All
24-Xena	48	Female	Anglo	Master's	6	5-6	All
25-Yvon	50	Female	Anglo	Master's	26	HS	English
26-Zellie	44	Female	Anglo	Master's	18	3-4	Art/PE
27-Amy	55	Female	Anglo	Master's	23	2nd	All
28-Barb	55	Female	Anglo	Master's	10	2-3	Lang. Arts
29-Carla	40	Female	Anglo	Master's	18	7th	Lang. Arts
30-Dana	46	Female	Anglo	Master's	8	1st	All
31-Evie	49	Female	Anglo	Master's	19	3rd	All
32-Fiona	38	Female	Af-Amer	Bachelor's	13	2nd	All
33-Genna	46	Female	Anglo	Master's	20	1st	All
Mean	47.2	–	–	–	16.81	–	–
SD	8.1	–	–	–	8.74	–	–

Data were collected to provide insight into the progression of coaching skills as teachers moved from initial coaching to mastery. Data were both quantitative and qualitative. Table 2 provides a more quantitative description of the experiences these 33 teachers underwent with respect to Cognitive Coaching over the three-year period. The major purpose of this study, though, was to analyze Planning and Reflecting conversations across time for the 33 teachers. To do this, conferences were transcribed and input into the program NUD*IST (QSR, 1997) for qualitative analysis. Transcripts were reviewed and themes identified collaboratively by the two authors of this paper

Table 2. Cognitive Coaching Experiences of Teachers in This Study

Teacher	Times Coached	Times coached w/o observer	Times been coached w/o obser-vation	Times coached students	Times rcd. Classrm. Mgt. coaching	# Dialog groups attended	Total Cognitive Coaching cycles
1—Abby	4	2	2	1	1	16	11
2—Betty	6	2	2	7	-	13	10
3—Chris	1	3	3	5	-	13	5
4—Delfina	-	-	-	-	-	3	8
5—Emily	7	0	0	7	-	11	6
6—Francis	2	10	6	1	-	16	9
7—Ginny	7	0	0	1	2	17	8
8—Hanna	7	2	2	1	3	14	12
9—Ina	9	50	50	7	-	10	8
10-Jim	5	2	2	6	-	14	-
11-Kathy	6	5	5	3	1	15	7
12-Leah	5	2	2	4	1	15	9
13-Milly	5	5	5	1	-	17	11
14-Nona	3	3	3	7	-	9	-

15-Opal	-	-	-	-	-	18	13
16-Pat	-	-	-	-	-	5	4
17-Qarri	4	3	3	5	-	16	10
18-Ray	7	0	0	7	-	11	9
19-Sandy	1	3	3	7	-	15	3
20-Tara	6	6	6	7	-	13	17
21-Uma	4	2	2	7	-	5	2
22-Vilma	6	6	6	7	-	17	10
23-Wes	5	6	6	5	-	16	6
24-Xena	2	2	2	5	-	6	5
25-Yvon	10	4	4	7	1	17	11
26-Zellie	1	3	3	7	-	10	10
27-Amy	9	1	1	7	-	11	7
28-Barb	6	5	5	4	-	11	2
29-Carla	6	0	0	5	1	15	8
30-Dana	2	5	5	6	-	14	6
31-Evie	50	0	1	6	1	8	12
32-Fiona	4	1	1	7	-	8	-
33-Genna	2	4	4	7	-	5	7
Mean	6.26	4.45	4.35	5.29	--	12.17	8.24
SD	8.48	8.76	8.69	2.21	--	4.05	3.75

Results

Conference transcripts were analyzed in several ways. First, conference length for each individual was assessed. Overall, both Planning and Reflecting Conferences were initially shorter and became more extended in length over the years. The average number of words for a Planning Conference in the first year was 1,539 while at the end of the period the average number of words was 2,375. The average number of words for a Reflecting Conference in the first year was 1,573 while at the end of the period the average was 1,915. Since conference audiotapes were not available for three years for all cases, only the baseline and final year comparisons were conducted. Conferences were not longer for all teachers, though. Table 3 lists whether Planning and Reflecting Conferences increased or decreased in length for each teacher.

Word and phrase searches were also conducted with transcripts to assess whether use of language oriented to standards changed over time. Word counts were used to assess differences in use of language for this variable. Table 3 lists changes

over time (increase, decrease, or stay the same) for use of standards-oriented language. The same approach was used to examine use of reflecting language by the coach (e.g., sounds like, seems like, see if I am understanding ...). Change over time in use of reflecting language (increase, decrease, stays the same) is noted in Table 3. In numerous transcripts, the interaction was too short to provide a good opportunity for either the teacher or the coach to truly interact. For both of these variables, use of language did not seem to change dramatically over time in terms of phrases used. Use of standards-oriented language either stayed the same or tended to increase. The same was true of the use of paraphrasing—it generally stayed the same over the three years but increased for a few teachers.

Teachers were asked to self-report whether they perceived that their approach to teaching had changed as a result of dialogue groups and then whether their abilities as a teacher had changed due to, first, dialogue groups and, second, Cognitive Coaching in general. A very few teachers indicated no perceptions of change while most teachers perceived themselves to have changed their approach to teaching in some small ways. Teachers were more positive about the changes they perceived in their teaching ability, with some teachers attributing major changes to Cognitive Coaching.

Table 3. Changes in Coaching Over Time

Teacher	Planning Conference Length	Reflecting Conference Length	Use of Standards Language	Use of Paraphrasing	Approach to Teaching Change due to Dialogue Groups	Ability Change due to Dialogue Groups	Ability Change due to CC
1–Abby	-	D	S	S	Small	Improved	Improved
2–Betty	I	Same	S	S	Small	Improved	Improved
3–Chris	-	I	S	S	Small	Improved	Improved
4—Delfina	I	I	I	S	Many Changes	Improved	Major Change
5–Emily	I	I	S	S	Small	Improved	Improved

6—Francis	I	-	I	D	Many Changes	Improved	Major Change
7—Ginny	I	-	S	S	Small	Improved	Improved
8—Hanna	I	-	S	S	Many Changes	Improved	Major Change
9--Ina	I	Same	S	S	No Change	No Change	Improved
10-Jim	D	D	S	S	No Change	No Change	Major Change
11-Kathy	I	D	S	S	Many Changes	Improved	Improved
12-Leah	D	I	S	S	Small	Improved	Major Change
13-Milly	I	I	S	S	Many Changes	Improved	-
14-Nona	I	I	S	S	-	-	-
15-Opal	D	I	D	I	Small	Improved	Improved
16-Pat	I	I	I	I	Small	Improved	Improved
17-Qarri	I	I	I	S	Small	Improved	Major Change
18-Ray	D	-	S	S	Many Changes	Major Change	Improved
19-Sandy	I	I	S	S	Many Changes	Improved	Improved
20-Tara	I	D	I	S	No Change	No Change	Major Change
21-Uma	I	-	S	S	Small	Improved	Major Change
22-Vilma	D	-	S	S	Many Changes	Major Change	Major Change
23-Wes	I	I	I	I	Major Change	Major Change	Major Change
24-Xena	I	I	I	I	Small	No Change	Improved
25-Yvon	-	D	S	S	Small	Major Change	Major Change
26-Zellie	I	-	S	S	No Change	No Change	Improved
27-Amy	I	I	S	S	Small	Improved	Improved
28-Barb	I	D	S	S	No Change	Improved	Improved
29-Carla	D	D	D	D	Small	Improved	Improved
30-Dana	D	I	D	I	Small	Improved	Major Change
31-Evie	I	D	S	S	Many Changes	Improved	Major Change
32-Fiona	I	-	S	S	-	-	-
33-Genna	I	-	S	I	Small	No Change	Improved

The subsequent analyses probed the quality of interactions evidenced in the transcripts. Initial Planning and Reflecting Conferences could be characterized in the following way. They were fairly structured, with the coach beginning by asking the teacher a question. Coach's questions were short, generally about concrete incidents rather than being abstract or emotion-laden, and often required closed-ended responses (yes/no) from the teacher. The coach was more likely than not to

accept what the teacher said, with some paraphrasing but little probing into the reasons and thinking behind what was presented. The coach often seemed to be in a problem-solving, information-providing mode, helping the teacher decide what to do rather than drawing it from the teacher's thoughts about teaching. Reflection was on the surface only, and teachers spoke in generalities about their lessons rather than giving specific data. The focus of the coaching conversation was generally on teacher performance as he/she interacted with the class as a whole. The coach and teacher often seemed to be using Cognitive Coaching as a form of litany rather than as an experience. Use of evaluative terms such as "Right" and "Good" were frequent, and were probably a way of the coach supporting the teacher but may have emphasized the distinction between the coach as holding more power in the conference and the teacher in a supplicant role. Conversations were sometimes stilted, with little reflection about teaching apparent. The focus of many conferences was on problems or problem students, with the coach helping the teacher with his/her "weaknesses." Some of the focus on surface issues in these initial conferences seemed to come from lack of familiarity with the process and perhaps a wish to do Cognitive Coaching in the "right" way. Content standards were discussed by some coaches and teachers, mostly in negative terms.

Planning and Reflecting conversations in subsequent years, when most participants had at least one year's experience with the process, could be characterized as follows. They tended to be a little longer, and participants were clearly more comfortable with them, with little attention paid to how to proceed. They were less stilted and generally more thoughtful and introspective. Some

coaches used more paraphrasing with more emphasis on "why" than "what." The coach increasingly sought to draw out the answers from the teachers, and the teachers generated more responses and came up with more insights as a result. Conversations became more fluid, and teachers moved more into examining effects that their lessons would have on student learning. Teachers focused even more on the effects of their lessons on individual students.

The teachers' comfort could be seen when many conferences began by the teacher opening the dialogue rather than the coach. Teachers were directing the conferences to meet their needs more than previously. Teachers talked more in later sessions with coaches talking less, and sometimes spontaneously generated multiple answers to their own questions. Standards were discussed by some coach-teacher pairs in terms of how they could be used to improve instruction. Coaches still made evaluative statements (right, good) but were less directive in the conferences. More specific details were revealed, and more conversations were about individual students, individual students' interactions or responses to the teacher, with more subtext brought out rather than solely surface content.

While the level of reflection and thoughtfulness seemed to change over time for some teachers, not all teachers exhibited discernible growth. For some teachers, ending conferences were much the same as initial conferences. For example, for teacher 9—Ina and teacher 26—Zellie, few differences were found. Teacher 9 had prior experience with Cognitive Coaching and thus may have already been at a plateau. Teacher 26, on the other hand, had little experience with Cognitive Coaching and did not gain much during the course of the project. It is possible that

coaching did not work well for her, that she did not devote sufficient time to practicing it, or that she experienced other life events that interfered with her learning.

Discussion

These data indicate that Cognitive Coaching training over a three-year period can result in significant increases in teacher reflection and depth of thinking, as well as significant growth in coaching skills. As coaches gain in coaching skills and practice these skills, they are able to help teachers increase their insights into what they are doing in their classrooms, resulting in even greater learning for students.

In a system in which teacher reflection and insight is increasingly important, Cognitive Coaching training and support during a three-year period may provide one means of creating an educational community in which teachers are able to significantly increase in their reflection and focus on student learning. These data not only provide information about teachers as they progress through three years of learning to coach, they can also provide insight into what happens as teachers begin to implement other innovations.

Training alone will not create an effective coach. Practice is necessary in order for teachers to develop their coaching skills. Districts that implement Cognitive Coaching should put at least as much thought and resources into supporting teachers as they practice their coaching skills as they put into providing the training. Since one of the most frequently mentioned difficulties with coaching is lack of time (Edwards & Newton, 1995), anything that administrators can do to

provide teachers with additional time to practice coaching will pay large dividends in the long run.

References

Barnett, B. G. (1995). Developing reflection and expertise: Can mentors make the difference? *Journal of Educational Administration*, 33 (5), 45-49.

Burk, J., Ford, M. B., Guffy, T., & Mann, G. (1996, February 21-24). Reconceptualizing student teaching: A STEP forward. Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education, Chicago, IL.

Costa, A., & Garmston, R. (1989). *The art of cognitive coaching: Supervision for intelligent teaching*. Training Syllabus, Institute for Intelligent Behavior, 950 Fulton Avenue, Suite 245, Sacramento, CA 95825.

Costa, A., & Garmston, R. (1994). *Cognitive coaching: A foundation for renaissance schools*. Norwood, MA: Christopher-Gordon.

Edwards, J. L. (1993). The effect of cognitive coaching on the conceptual development and reflective thinking of first year teachers. (Doctoral dissertation, The Fielding Institute, Santa Barbara, CA). *Dissertation Abstracts International*, 54/03-A, AAD93-20751.

Edwards, J. L., Green, K. E., & Lyons, C. A. (1996, April). Factor and rasch analysis of the school culture survey. Paper presented at the Annual Meeting of the American Educational Research Association, New York.

Edwards, J. L., Green, K. E., Lyons, C. A., Rogers, M. S., & Swords, M. E. (1998, April). *The effects of cognitive coaching and nonverbal classroom management on teacher efficacy and perceptions of school culture.* Paper presented at the American Educational Research Association, San Diego, CA.

Edwards, J. L., & Newton, R. R. (1995, April). The effects of cognitive coaching on teacher efficacy and empowerment. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Foster, N. (1989). The impact of cognitive coaching on teachers' thought processes as perceived by cognitively coached teachers in the Plymouth-Canton Community School District. (Doctoral dissertation, Michigan State University, Detroit, MI, 1989). Dissertation Abstracts International, 27, 54381.

Garmston, R. (1990). Is peer coaching changing supervisory relationships? Some personal impressions. *California ASCD Journal*, Winter, 21-28.

Garmston, R. (1991). Cognitive coaching: Leadership beyond appraisal. *Instructional Leader*, 4 (1), 1-3, 9.

Garmston, R., & Hyerle, D. (1988, August). *Professor's peer coaching program: Report on a 1987-88 pilot project to develop and test a staff development model for improving instruction at California State University*, Sacramento, CA.

Geltner, B. B. (1993, October). Integrating formative portfolio assessment, reflective practice, and cognitive coaching into preservice preparation. Paper presented at the Annual Convention of the University Council for Educational Administration, Houston, TX.

Hagopian, G., Williams, H. B., Carrillo, M., & Hoover, C. C. (1996, April 8-12). *The 2-5 collaborative in-class model: A restructuring of the title I program.* Paper presented at the Annual Meeting of the American Educational Research Association, New York NY.

Krpan, M. M. (1997). *Cognitive coaching and efficacy, growth, and change for second-, third-, and fourth-year elementary school educators.* Unpublished M.S., California State University, Fullerton.

McLymont, E. F., & da Costa, J. L. (1998). *Cognitive coaching: The vehicle for professional development and teacher collaboration.* Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.

Phillips, M. D. (1996). *The curriculum consultant as proactive staff developer.* Unpublished M.ED., The University of Manitoba (Canada).

QSR. (1997). *QSR NUD•IST (2nd Ed.).* Thousand Oaks, CA: Sage.

Ray, T. M. (1998). Implementing the NCTM's standards through cognitive coaching. *Teaching Children Mathematics,* 4 (8), 480-83.

Saphier, J., & King, M. (1985, March). Good seeds grow in strong cultures. *Educational Leadership,* 67-74.

Simmons, J. M., Sparks, G. M., Starko, A., Pasch, M., & Colton, A. (1989). Pedagogical language acquisition & conceptual development taxonomy of teacher reflective thought: Interview and questions format. East Lansing, MI: Authors.

Sommers, W. (1991, January). Cognitive coaching sustains teaching strategies. Minnesota *Association of Secondary School Principals Newsletter,* 7.

Sparks, G. M., & Bruder, S. (1987, November). Before and after peer coaching. *Educational Leadership,* 45 (3), 54-57.